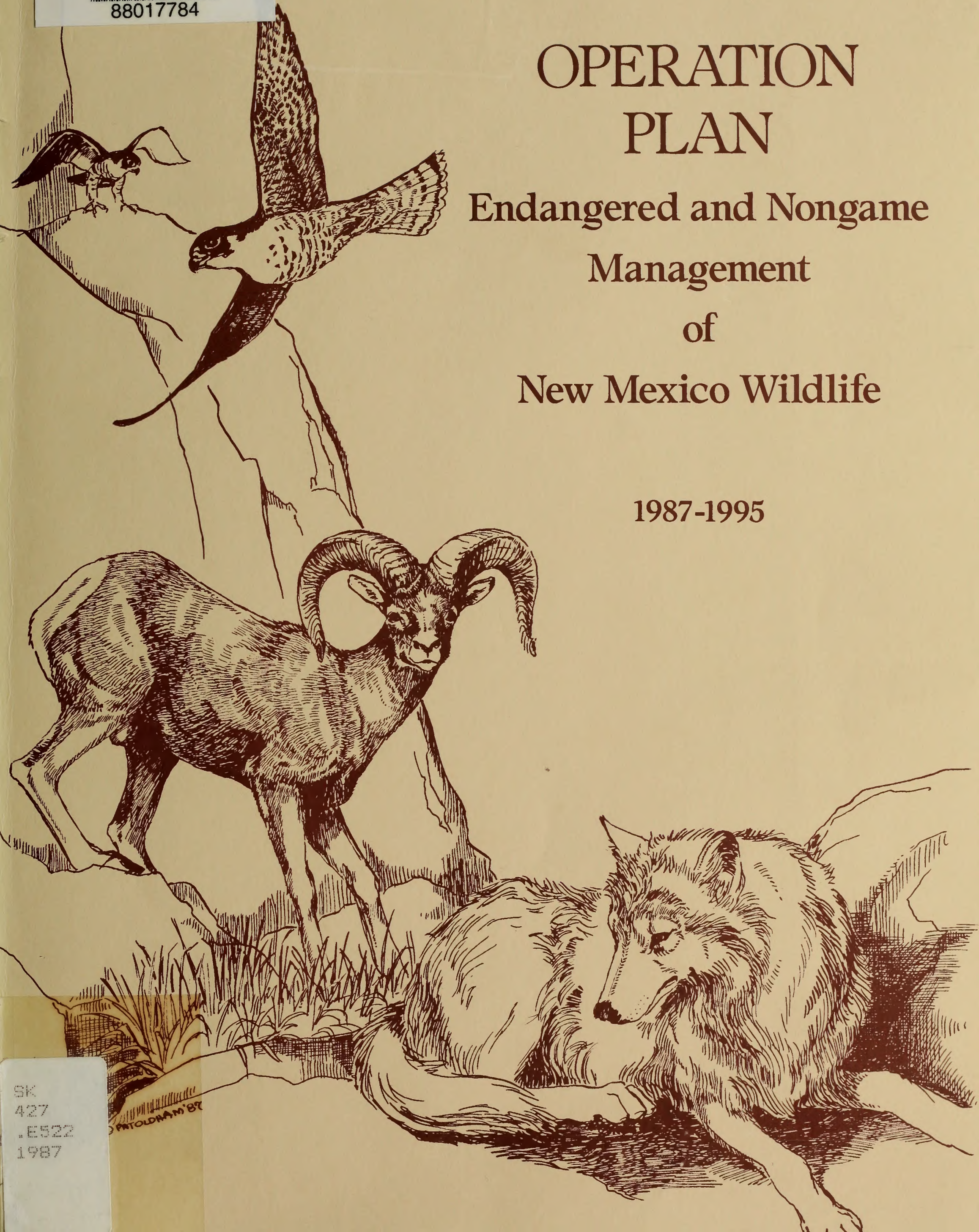
BLM LIBRARY
88017784

OPERATION PLAN

Endangered and Nongame Management of New Mexico Wildlife

1987-1995



SK
427
.E522
1987

OPERATION PLAN-ENDANGERED AND NONGAME MANAGEMENT OF NEW MEXICO WILDLIFE

ERRATA SHEET

Page i
  par. 4, line 3: change "adds" to "add".

Page 4
  Hab. Mgt par. 2, line 1: insert comma after "purchase"
  Hab. Mgt par. 3, lines 1-2: insert "ferret" after "black-footed".

Page 25
  par. 1, line 2: change "predatory" to "predator".

Page 29
  D-J par., line 7: insert a period after "states" and capitalize "excise".

Page 30
  par. 5, line 1: insert "a" before "department dependent".
  par. 5, line 4: delete "that".

Page 32
  par. 1, line 2: insert "a" before "vacuum".
  par. 2, line 4: delete "in New Mexico".

Page 33
  par. 4, line 5: pluralize "occurrence".
  par. 6, line 3: change "Men's" to "Man's".

Page 34
  par. 1, line 1: insert "the" before "viability".
  par. 6: insert colon instead of a quotation mark after "species".

Page 41
  par. 4, last sentence: insert "and" before "their actual".

2-5-88/avs

20584572
ID 88017784

SK
427
.E522
1987

TABLE OF CONTENTS

BLM LIBRARY
SC-324A, BLDG. 50
DENVER FEDERAL CENTER
P. O. BOX 25047
DENVER, CO 80225-0047

Page i FOREWORD
ii INTRODUCTION

1 ENDANGERED AND THREATENED SPECIES
2 Federal Endangered/Threatened Species
3 Management Considerations:
3 Mexican Gray Wolf
3 Black-Footed Ferret
5 Brown Pelican
5 Bald Eagle
6 Peregrine Falcon
6 Aplomado Falcon
7 Least Tern
7 Whooping Crane
8 New Mexican Ridgenose Rattlesnake
9 Gila Trout
9 Colorado Squawfish
10 Chihuahua Chub
11 Pecos Gambusia
12 Spikedace
12 Loach Minnow
13 Pecos Bluntnose Shiner
13 Socorro Isopod
14 State Endangered Species
14 Mammals
14 Birds
15 Reptiles
16 Amphibians
16 Fishes
17 Crustaceans
17 Mollusks
17 Management Considerations

19 NONGAME
19 Management Objective
19 Research
19 Species Management
19 Habitat Management

21 APPENDIX
21 Laws and Memorandum of Understanding
25 Statutory Authority
28 Fiscal Authority
31 Philosophical Basis of Wildlife Management

FOREWORD

Wildlife and fish management concerns more than the harvest of the wildlife and fish resource. It includes concepts and activities which promote the conservation of this valuable resource. Conservation is performed most effectively not by individual agencies but by groups of agencies working toward a common goal. As a coalition of agencies, we the undersigned are dedicated to seeing that wildlife and fish needs are fully considered and effectively implemented in a cooperative effort. This will deliver the wildlife and fish resources of New Mexico in a viable condition to future generations to use and enjoy. Toward this goal and through this operation plan we pledge our support.

Linkage with Forest Service Land Management Plans and Bureau of Land Management Resource Management Plans

This Operation Plan, prepared in compliance with the Sikes Act P.L. 93-452, has the purpose of securing interagency cooperation in establishing mutual goals and objectives for conservation and enhancement of the wildlife and fisheries resources occurring on national forests, national grasslands, public lands and State Game and Fish lands within New Mexico.

The Operation Plan should be looked upon as a supplement to both the Forest Service's and Bureau of Land Management's land-use planning process. Direction, guidance and scheduling contained herein adds substance and detail to standards and guidelines contained in Forest Plans (FP's) or Resource Management Plans (RMP's). The Operation Plan makes no land or resource allocations and should not be interpreted as doing so. In the event of real or apparent conflict between the Operation Plan and the pertinent FP/RMP, directions or decisions contained in the FP/RMP shall at all times prevail until and unless desired direction extracted from the Operation Plan is amended to the FP/RMP as appropriate and in accordance with federal land use planning laws and regulations.

Larry L. Woodard

Larry Woodard, State Director
Bureau of Land Management

Sotero Muniz 11/10/87

Sotero Muniz, Regional Forester
USDA Forest Service, Region 3

Harold F. Olson 11/18/87

Harold F. Olson, Director
New Mexico Department of Game and Fish

INTRODUCTION

By virtue of its size, location, and varied topography, New Mexico is host to one of the most diverse native faunas of any of the United States. The state encompasses some 121,666 square miles, lying between latitudes 30 and 36 north and longitudes 103 and 110 west. Elevations range from around 2,800 feet in the lowermost Pecos Valley to 13,161 feet on Wheeler Peak in the Sangre de Cristo Mountains. The major biotic regions that impinge upon the state are the Southern Rocky Mountains, the Southern Great Plains, the Great Basin, the Chihuahuan Desert, and the Sierra Madrean Uplands.

In terms of the diversity of native vertebrates, the most numerous group in the fauna of New Mexico is that of birds. All told, 449 species have been verified in the state in the last 150 years. In addition, another 48 species have been reported, of which 30 are recorded on reliable enough grounds to be accepted as members of the avifauna--for a grand total of 479 species. Next most diverse are the native mammals, of which 147 species are reliably recorded in the state. Following mammals are reptiles (91 species), then fishes (69 species), and finally amphibians (25). Finally, there are thousands of species of invertebrates, including hundreds of mollusks and crustaceans.

New Mexico is a state that remains natural over much of its area, with vegetational communities ranging from grasslands and shrublands to coniferous forests and alpine tundra. However, many natural-appearing habitats have changed since Europeans first arrived in the area in 1539. For example, large areas that were once grasslands have been invaded by trees and shrubs, such as junipers, mesquite, creosotebush, cacti, and various woody composites. In addition, native riparian woodlands have shrunk in extent and/or been replaced by growths of such exotics as saltcedar (tamarisk), Russian olive, and Siberian elm. Even montane forests have changed in character, including as a result of fire suppression, wood harvest, and silvicultural practices.

Changes in vegetative communities and other aspects of the environment have also produced changes in the fauna of New Mexico. For example, several species of mammals, birds, and fishes have either been extirpated or severely reduced in numbers in the state. Examples of these include the American bison, gray wolf, jaguar, black-footed ferret, river otter, aplomado falcon, sage grouse, sharp-tailed grouse, shovelnose sturgeon, and various minnow species. Other species have declined measurably in numbers and/or range in the state, while additional ones are vulnerable and subject to declines in the face of human-induced and other traumas.

Of the declining or vulnerable species in New Mexico, 108 are listed as endangered by the Department of Game and Fish. Of these, 17 are also listed as endangered or threatened by the U. S. Fish and Wildlife Service. The state list is comprised of 14 species of mammals, 30 birds, 16 reptiles, five amphibians, 23 fishes, one crustacean, and 19 mollusks. The federal list contains two mammals, five birds, one reptile, seven fishes, and one crustacean.

Endangered and threatened wildlife is by no means the only wildlife legacy that marks the occupancy by Europeans of New Mexico, as many native species are thriving in the state. In fact, many species have apparently invaded New Mexico on their own volition in historic time, including birds such as the cattle egret, northern cardinal, and great-tailed and common grackles. However, nongame species such as these have largely had to fend for themselves. As a result, their habitat and their needs have tended to be met more by fortuitous chance than by management design. Needless to say, "chance" is not a proper approach to wildlife management--especially in the light of such increasingly important considerations as the maintenance of natural diversity.

The following plan is designed to do two things: one is to focus on the specific recovery needs of those species listed as endangered and threatened in New Mexico; the other is to elevate consciousness toward nongame species that are not dealt with in other sections of this plan. The section on endangered and threatened species is straight-forward and requires no explanation. On the other hand, the section on nongame species deserves some comment--largely because of its very truncated and generalized approach. In the first place, the great number of nongame species and the general inadequacy of our knowledge about them combine to preclude an extended discussion of them. Secondly, a more specific treatment might result in management being undertaken that could benefit some species while harming others. Finally, an excess of detail on nongame species could overburden this plan and could result in more harm than good.

In the long-term, the nongame section in this plan should be viewed as a call for more data to be gathered on these species, so that their needs can then be factored into management plans on a case-by-case basis. All users of this plan are urged to infuse their management with the needs of all species, whether game or nongame. As for nongame species, users should consult the appropriate sources for information on their areas of concern. These include the Department of Game and Fish, the U. S. Fish and Wildlife Service, university and museum staffs, specimen collections, published and unpublished literature, and such documents as notices of review (USFWS) and lists of sensitive species.

OPERATION PLAN
ENDANGERED AND THREATENED SPECIES
1987-1995

Management Goal

To develop and implement management to secure the status and ultimately recover all species listed as endangered or threatened in New Mexico.

Federally Listed Species

The listing of these species is under the Endangered Species Act of 1973 and its subsequent amendments. Under the Act, listed species are taxa that are or may soon be faced with extinction throughout all or significant portions of their ranges. The U. S. Fish and Wildlife Service and its cooperators have, or are developing, recovery plans for all species. Several recovery plans have already been implemented in New Mexico. Both wildlife and land management agencies are vitally interested in the welfare of these species. The Department of Game and fish has entered into a cooperative agreement with the U. S. Fish and Wildlife Service under Section 6 of the Endangered Species Act. Among other things, agreement allows the department to manage federally listed species as a co-equal with the Service. The management of federally listed species is given priority by the department in all cases where their existence is suspected or confirmed in New Mexico.

Experimental Populations

The reintroduction of federally listed species into areas of historic range can pose certain problems, the major one being the potential for conflict with other usage that may have developed in an area. In order to ease this as a source of conflict, the concept of the "experimental" population has been amended to the Endangered Species Act. Under this amendment, populations of endangered or threatened species can be reintroduced as experimental, if they are separate and distinct from naturally occurring populations. While protected by the Act, experimented populations are not listed as endangered or threatened. This approach is designed to create a more flexible management framework. For example, management options that can be sought for experimental populations include the relaxation of prohibitions against taking, so that accidental capture or even harvest of animals can be allowed. The release of any experimental population in New Mexico must first be preceded by a joint federal-state management plan, appropriate regulations, and a cooperative agreement.

State-Listed Species

The listing of these species is under the Wildlife Conservation Act of 1974. Under the Act, listed species are taxa the prospects of survival or recruitment of which are in jeopardy in New Mexico or may become so within the foreseeable future. These species may also be federally listed, in which case U. S. Fish and Wildlife Service recovery plans are used for their management. For other species, the department develops management plans as needed. All

state-listed species are included in the Handbook of Species Endangered in New Mexico, which provides information on each taxon under the headings of listing status, distinguishing features, other descriptive details, distribution, biology, status, conservation, bibliography, and citation. Agreements are negotiated with land management agencies wherein state-listed species are given priority status and managed for their recovery.

FEDERAL ENDANGERED/THREATENED SPECIES

MAMMALS

ENDANGERED

gray wolf (*Canis lupus baileyi*--Mexican subspecies)
black-footed ferret (*Mustela nigripes*)

BIRDS

ENDANGERED

brown pelican (*Pelecanus occidentalis*)
bald eagle (*Haliaeetus leucocephalus*)
peregrine falcon (*Falco peregrinus anatum*)
whooping crane (*Grus americana*)

THREATENED

aplomado falcon (*Falco femoralis septentrionalis*)
least tern (*Sterna antillarum athalassos*)

REPTILES

THREATENED

ridgenose rattlesnake (*Crotalus willardi obscurus*--New Mexican subspecies)

FISHES

ENDANGERED

Gila trout (*Salmo gilae*)
Colorado squawfish (*Ptychocheilus lucius*)
Pecos gambusia (*Gambusia nobilis*)

THREATENED

Chihuahua chub (*Gila nigrescens*)
spikedace (*Meda fulgida*)
loach minnow (*Tiaroga cobitis*)
bluntnose shiner (*Notropis simus pecosensis*--Pecos River subspecies)

CRUSTACEANS

ENDANGERED

Socorro isopod (*Thermosphaeroma thermophilum*)

MANAGEMENT CONSIDERATIONS

MEXICAN GRAY WOLF

Research

Develop effective methods for locating and protecting wild wolves in the state.

Initiate studies of any wild population that may be found, including to investigate methods to mitigate conflicts with human interests.

Evaluate public attitudes toward wolves and develop means for positively modifying them as necessary.

Carry out other appropriate activities outlined in the Mexican Wolf Recovery Plan.

Species Management

Support a captive breeding program with Mexican wolves from the historic range in the Southwest and Mexico.

Carry out other appropriate activities outlined in the Mexican Wolf Recovery Plan.

Habitat Management

Evaluate the possible reintroduction of captive-raised wolves into suitable areas of the historic range, using guidelines in the Mexican Wolf Recovery Plan.

Carry out appropriate activities outlined in the Mexican Wolf Recovery Plan.

BLACK-FOOTED FERRET

Research

Develop effective methods for locating and protecting black-footed ferrets in New Mexico.

Initiate studies of any populations that are located, including habitat requirements, life history, population dynamics, and related information.

Identify and evaluate limiting factors for ferrets, including negative impacts of canine distemper, sylvatic plague, and secondary poisoning.

Evaluate public attitudes toward maintenance of prairie dog populations as prey for black-footed ferrets and develop procedures for positively modifying attitudes as necessary.

Carry out other appropriate activities outlined in the Black-footed Ferret Recovery Plan.

Species Management

Live-trap black-footed ferrets from insecure areas and transplant them into areas where survival prospects will be better.

If sufficient numbers of ferrets can be located, consider capture of a stock for captive breeding.

Evaluate feasibility of transplanting captive-reared ferrets into secure areas of suitable historic habitat.

Carry out other appropriate activities outlined in the Black-footed Ferret Recovery Plan.

Habitat Management

Evaluate management of prairie dogs in historic ferret range and implement measures to guarantee their perpetuation as a prey base for the ferrets.

Obtain (through purchase lease, or easement) privately-owned lands that are particularly desirable as ferret habitat and manage to perpetuate that suitability.

Monitor sylvatic plague in areas set aside as potential black-footed habitat and implement control measures as deemed feasible.

Prohibit trapping, target-shooting, M-44 use, and other potentially deleterious activities in areas that are particularly suitable as habitat for ferrets.

Carry out other appropriate activities outlined in the Black-footed Ferret Recovery Plan.

BROWN PELICAN

Research

None.

Species Management

Protect any individuals that may occur in New Mexico, where the species is a straggler at best.

Habitat Management

None.

BALD EAGLE

Research

Locate and study nesting eagles to obtain information on their breeding biology, food habits, habitat use, populational characteristics, and related factors.

Monitor numbers, age classes, distribution, dates of occurrence, movements, food habits, habitat requirements, limiting factors, and threats in wintering and migrant populations of bald eagles.

Determine chemical contamination levels in eagles and their prey.

Carry out other appropriate activities outlined in the Southern Bald Eagle Recovery Plan.

Species Management

Carry out appropriate activities outlined in the Southern Bald Eagle Recovery Plan.

Habitat Management

Identify and protect key sites for foraging, roosting, and nesting eagles, including through cooperative management of habitat and prey species.

Develop or enhance foraging, roosting, and nesting areas for eagles, with special emphasis on protecting essential habitat for wintering and breeding populations.

Modify or remove environmental factors that may be detrimental to eagle survival, including human disturbance, sources of electrocution, dangerous structures, pollution, lead-poisoning, and illegal taking.

Carry out other appropriate activities outlined in the Southern Bald Eagle Recovery Plan.

PEREGRINE FALCON

Research

Locate and monitor eyries, with particular emphasis on documenting reoccupancy rates, productivity, food habits, biology, and related information.

Collect and analyze prey and falcon remains for pesticides and other chemical contaminants.

Document the interrelationships between breeding populations of peregrines and their environment to improve means of identifying and protecting suitable habitat.

Carry out other appropriate activities outlined in Rocky Mountain/Southwest Peregrine Falcon Recovery Plan and other acceptable management plans and agreements.

Species Management

Carry out other appropriate activities outlined in the Rocky Mountain/Southwest Peregrine Falcon Recovery Plan and other acceptable management plans and agreements.

Habitat Management

Identify and protect essential habitat for present and future breeding populations.

Develop and implement management plans for all breeding territories, with the emphasis on those on public lands.

Carry out other appropriate activities outlined in Rocky Mountain/Southwest Peregrine Falcon Recovery Plan and other acceptable management plans and agreements.

APLOMADO FALCON

Research

Investigate reliability of any reports of individuals and determine if

these are indicative of the persistence of any population of the species in the state.

Species Management

None.

Habitat Management

Implement measures to improve the quality of grassland and savanna habitats in historic range in southern New Mexico, with the major emphasis on maximizing prey diversity and density on public lands.

LEAST TERN

Research

Continue studies on the breeding population at Bitter Lake National Wildlife Refuge, with emphasis on determining habitat requirements, limiting factors, and possible means of expanding population numbers.

Monitor status in other parts of New Mexico, where the species now occurs as a rare and local migrant or vagrant.

Species Management

None, pending completion of research and a recovery plan.

Habitat Management

Identify and protect nesting habitat at Bitter Lake National Wildlife Refuge.

WHOOPING CRANE

Research

Monitor numbers, age classes, dates of occurrence, distribution, movements, food habits, habitat requirements, limiting factors, and threats in migrant and wintering populations.

Carry out other appropriate activities outlined in Whooping Crane Recovery Plan and other acceptable management plans.

Species Management

Increase survival levels in the population, including through protection against stress, starvation, disease, pollution, taking, and harassment.

Carry out other appropriate activities outlined in the Whooping Crane Recovery Plan and other acceptable management plans.

Habitat Management

Manage, protect, and expand areas used by cranes for foraging, roosting, and staging.

Manage habitat to create more desirable use-patterns among cranes.

Modify or remove environmental factors that may be detrimental to survival, including disturbance, pollution, and sources of electrocution/collision.

Carry out other appropriate activities outlined in the Whooping Crane Recovery Plan and other acceptable management plans.

NEW MEXICAN RIDGENOSE RATTLESNAKE

Research

Complete studies to determine the degree of taxonomic differentiation of the New Mexican subspecies of the ridgenose rattlesnake.

Monitor populations in the Animas Mountains to document biology, population trends, limiting factors, threats, and related information.

Evaluate impacts of current and potential land use in the Animas Mountains on the population of rattlesnakes.

Carry out other appropriate activities outlined in the New Mexican Ridgenose Rattlesnake Recovery Plan.

Species Management

Control man-associated factors that adversely affect the species, including illegal taking and wanton killing.

Carry out appropriate activities outlined in the New Mexican Ridgenose Rattlesnake Recovery Plan.

Habitat Management

Acquire and protect areas of essential habitat in the Animas Mountains, including through agreements, lease, or purchase of lands.

GILA TROUT

Research

Continue the monitoring of populations to document populational characteristics, growth rates, habitat requirements, life history, limiting factors, and related information.

Assess the response of Gila trout to experimental angling and identify streams that could support a sport fishery.

Investigate the feasibility of developing a captive propagation program for Gila trout.

Carry out other appropriate activities outlined in the _Gila Trout Recovery Plan_.

Species Management

Develop and disseminate information on the species, its status and life history, and the rationale for the recovery effort.

If deemed feasible, develop a captive propagation program for Gila trout.

Develop and implement a plan to expand Gila trout populations into a larger segment of the historic range.

Carry out other appropriate activities outlined in the _Gila Trout Recovery Plan_.

Habitat Management

Maintain and enhance habitat, including through construction of barriers to protect against incursion of undesirable fishes into areas suitable for Gila trout.

Restore selected areas of suitable habitat for the reintroduction of Gila trout, including by removal of exotic fishes and improvement of streams.

Carry out other appropriate activities outlined in the _Gila Trout Recovery Plan_.

COLORADO SQUAWFISH

Research

Survey the San Juan River drainage to determine if populations of squawfish are present.

Conduct studies on any populations of squawfish that may be found in the state, with the primary emphasis on documenting distribution, populational characteristics, life history, and related information.

Carry out other appropriate activities outlined in the Colorado Squawfish Recovery Plan.

Species Management

Consider transplants of squawfish into the San Juan and possibly the Gila river drainages.

Carry out other appropriate activities outlined in the Colorado Squawfish Recovery Plan.

Habitat Management

Improve water, fishery, and associated management in the San Juan drainage to maintain or enhance the suitability of the habitat for squawfish.

Carry out other appropriate activities outlined in the Colorado Squawfish Recovery Plan.

CHIHUAHUA CHUB

Research

Document the populational characteristics, growth rates, food habits, habitat requirements, limiting factors, and related information on chubs in the Mimbres River drainage and possibly in Chihuahua.

Evaluate the suitability of other sites in the Mimbres River drainage for possible reintroduction of the species, including the Cooney Place, Gallinas Creek, the department's Mimbres property, McKnight Creek, and Bear Canyon Lake.

Carry out other appropriate activities outlined in the Chihuahua Chub Recovery Plan.

Species Management

Maintain production of the Chihuahua chub through captive propagation.

Transplant the Chihuahua chub into appropriate restoration areas.

Prohibit the taking of bait fish in the Mimbres drainage.

Carry out other appropriate activities outlined in the Chihuahua Chub Recovery Plan.

Habitat Management

Prohibit the introduction or use of non-native fish species in Chihuahua chub habitat in the Mimbres River basin and eliminate established non-natives that may be detrimental to the chub.

Maintain and enhance habitat suitability for the chub through improved management of watershed, riparian, and other areas.

Acquire areas of essential habitat through purchase, lease, or easement.

Carry out other appropriate activities outlined in Chihuahua Chub Recovery Plan.

PECOS GAMBUSIA

Research

Monitor populations in the Pecos River drainage and document habitat requirements, food habits, age-growth characteristics, reproductive biology, and limiting factors.

Evaluate waters within the former range of the Pecos gambusia to identify sites suitable for possible reintroductions.

Carry out other appropriate activities outlined in the Pecos Gambusia Recovery Plan.

Species Management

Transplant Pecos gambusia into selected areas of the Pecos River drainage, including for mosquito control.

Carry out other appropriate activities outlined in the Pecos Gambusia Recovery Plan.

Habitat Management

Maintain, enhance, or reclaim gambusia habitat in the Pecos River drainage, to include construction of barriers against the incursion of undesirable fishes and other aquatic species into areas that are suitable for the Pecos gambusia.

Carry out other appropriate activities outlined in the Pecos Gambusia Recovery Plan.

SPIKEDACE

Research

Monitor populations to document distribution, populational characteristics, growth rates, food habits, habitat requirements, threats, and related information.

Develop a recovery plan.

Species Management

Prohibit taking or use of bait fishes in areas suitable for occupancy by the spikedace.

Investigate the potential for captive propagation of the species.

Habitat Management

Maintain, enhance, or reclaim habitat for the species within the historic range, especially on public lands.

Acquire areas of suitable habitat for the spikedace on private land.

LOACH MINNOW

Research

Monitor populations to document distribution, populational characteristics, growth rates, food habits, habitat requirements, threats, and related information.

Develop a recovery plan.

Species Management

Prohibit taking or use of bait fishes in areas suitable for occupancy by the loach minnow.

Investigate the potential for captive propagation of the species.

Habitat Management

Maintain, enhance, or reclaim habitat for the species within the historic range, especially on public lands.

Acquire areas of suitable habitat for the loach minnow on private land.

PECOS BLUNTNOSE SHINER

Research

Monitor populations to document distribution, populational characteristics, growth rates, food habits, habitat requirements, threats, and related information.

Develop a recovery plan.

Species Management

Prohibit taking of bait fishes in areas suitable for occupancy by this shiner.

Investigate the potential for captive propagation of this shiner.

Habitat Management

Maintain, enhance, or reclaim habitat for the species within the historic range, especially on public lands.

Acquire areas of suitable habitat for this shiner on private land.

SOCORRO ISOPOD

Research

Continue studies of the species and its requirements, both in the wild and in captivity.

Refine methods to propagate the species in artificial habitats and/or in captivity.

Evaluate other thermal springs in the Socorro region of New Mexico as possible introduction sites.

Carry out other appropriate activities identified in the Socorro Isopod Recovery Plan.

Species Management

Protect the population at Sedillo Spring against stress, taking, harassment, and other detrimental impacts.

Increase population size by transplants of isopods into new or expanded areas of habitat.

Carry out other appropriate activities outlined in the Socorro Isopod Recovery Plan.

Habitat Management

Ensure protection of isopod habitat at Sedillo Spring including through purchase, easement, or agreement.

Develop or expand habitat for the isopod, including through the construction of a new facility near Sedillo Spring.

Carry out other appropriate activities identified in the Socorro Isopod Recovery Plan.

STATE ENDANGERED SPECIES
(Species marked with an asterisk are also federally listed)

MAMMALS

Group 1

white-sided jackrabbit (Lepus callotis)
least chipmunk (Eutamias minimus atristriatus--Sierra Blanca-Sacramento Mts. subspecies)
bighorn sheep (Ovis canadensis mexicana--native, wild populations of desert race only)
*gray wolf (Canis lupus baileyi)
*black-footed ferret (Mustela nigripes)

Group 2

least shrew (Cryptotis parva)
Arizona shrew (Sorex arizonae)
southern yellow bat (Lasiurus ega)
black-tailed prairie dog (Cynomys ludovicianus--Tularosa Basin population only)
Colorado chipmunk (Eutamias quadrivittatus australis--Organ Mts. subspecies only)
southern pocket gopher (Thomomys umbrinus emotus)
montane vole (Microtus montanus arizonensis--Arizona subspecies only)
meadow jumping mouse (Zapus hudsonius luteus)
pine marten (Martes americana)

BIRDS

Group 1

*brown pelican (Pelecanus occidentalis)
*peregrine falcon (Falco peregrinus anatum)
white-tailed ptarmigan (Lagopus leucurus)
sharp-tailed grouse (Tympanuchus phasianellus)

sage grouse (*Centrocercus urophasianus*)
common ground-dove (*Columbina passerina*)
elegant trogon (*Trogon elegans*)
buff-collared nightjar (*Caprimulgus ridgwayi*)
northern beardless-tyrannulet (*Camptostoma imberbe*)

Group 2

olivaceous cormorant (*Phalacrocorax olivaceus*)
Mississippi kite (*Ictinia mississippiensis*)
*bald eagle (*Haliaeetus leucocephalus*)
common black-hawk (*Buteogallus anthracinus*)
wild turkey (*Meleagris gallopavo mexicana*--Gould's subspecies only) See Page 240 of Terrestrial Section.
*whooping crane (*Grus americana*)
*least tern (*Sterna antillarum athalassos*)
Costa's hummingbird (*Calypte costae*)
lucifer hummingbird (*Calothorax lucifer*)
violet-crowned hummingbird (*Amazilia violiceps*)
white-eared hummingbird (*Hylocharis leucotis*)
broad-billed hummingbird (*Cynanthus latirostris*)
Gila woodpecker (*Melanerpes uropygialis*)
thick-billed kingbird (*Tyrannus crassirostris*)
Bell's vireo (*Vireo bellii*)
gray vireo (*Vireo vicinior*)
varied bunting (*Passerina versicolor*)
Abert's towhee (*Pipilo aberti*)
Baird's sparrow (*Ammodramus bairdii*)
yellow-eyed junco (*Junco phaeonotus*)
McCown's longspur (*Calcarius mccowni*)

REPTILES

Group 1

Gila monster (*Heloderma suspectum*)
*ridgenose rattlesnake (*Crotalus willardi obscurus*)

Group 2

river cooter (*Pseudemys concinna*)
bunch grass lizard (*Sceloporus scalaris*)
sagebrush lizard (*Sceloporus graciosus arenicolous*--sand-dune subspecies only)
mountain skink (*Eumeces callicephalus*)
giant spotted whiptail (*Cnemidophorus burti*)
gray-checkered whiptail (*Cnemidophorus dixoni*)

plainbelly water snake (*Nerodia erythrogaster*)
Trans-Pecos rat snake (*Elaphe subocularis*)
green rat snake (*Elaphe triaspis*)
narrowhead garter snake (*Thamnophis rufipunctatus*)
Mexican garter snake (*Thamnophis eques*)
western ribbon snake (*Thamnophis proximus*)
Sonoran mountain kingsnake (*Lampropeltis pyromelana*)
rock rattlesnake (*Crotalus lepidus lepidus*--Guadalupe Mts. subspecies only)

AMPHIBIANS

Group 2

Jemez Mountains salamander (*Plethodon neomexicanus*)
Sacramento Mountain salamander (*Aneides hardii*)
barking frog (*Hylactophryne augusti*)
Colorado River toad (*Bufo alvarius*)
western toad (*Bufo boreas*)

FISHES

Group 1

*Gila trout (*Salmo gilae*)
blue sucker (*Cycleptus elongatus*)
gray redhorse (*Moxostoma congestum*)
Gila chub (*Gila intermedia*)
*Chihuahua chub (*Gila nigrescens*)
*Colorado squawfish (*Ptychocheilus lucius*)
southern redbelly dace (*Phoxinus erythrogaster*)
bluntnose shiner (*Notropis simus simus*)
phantom shiner (*Notropis orca*)
Arkansas River Shiner (*Notropis girardi*--Canadian River drainage populations only)

Group 2

Mexican tetra (*Astyanax mexicanus*)
bluehead sucker (*Catostomus discobolus yarrowi*--Zuni Mountains subspecies only)
roundtail chub (*Gila robusta*)
*bluntnose shiner (*Notropis simus pecosensis*)
*loach minnow (*Tiaroga cobitis*)
suckermouth minnow (*Phenacobius mirabilis*)
Mississippi silvery minnow (*Hybognathus nuchalis*)
speckled chub (*Hybopsis aestivalis tetranemus*--Canadian subspecies only)
*spikedace (*Meda fulgida*)
*Pecos gambusia (*Gambusia nobilis*)

White Sands pupfish (Cyrinodon tularosa)
bigscale logperch (Percina macrolepida)
greenthroat darter (Etheostoma lepidum)
brook stickleback (Culaea inconstans)

CRUSTACEANS

Group 1

*Socorro isopod (Thermosphaeroma thermophilum)

MOLLUSKS

Group 1

Pecos assiminea (Assiminea sp.)
Socorro spring snail (Fontelicella neomexicana)
Roswell spring snail (Fontelicella sp.)
Say's pond snail (Lymnaea caperata)
Papershell mussell (Anodonta imbecillis)
Pope's mussel (Popenaias popei)
New Mexico ramshorn snail (Pecosorbis kansasensis)
Sangre de Cristo pea-clam (Pisidium sp.)

Group 2

Gila spring snail (Fontelicella sp.)
New Mexico hot spring snail (Fontelicella sp.)
Chupadera spring snail (Fontelicella sp.)
Pecos spring snail (Fontelicella sp.)
Alamosa spring snail (Tryonia sp.)
Koster's spring snail (Tryonia sp.)
Linnaeus' ramshorn snail (Gyraulus crista)
Raymonds' pea-clam (Musculium raymondi)
wide pea-clam (Musculium transversum)
circular pea-clam (Musculium partumeium)
Lilljeborg's pea-clam (Pisidium lilljeborgii)

MANAGEMENT CONSIDERATIONS
(See previous section for federally
listed species)

Research

Compile, analyze, and summarize information on distribution, abundance, populational characteristics, habitat utilization, seasonal occurrence, taxonomy, food habits, species associations, dispersal, breeding biology, threats, limiting factors, recovery methods, and related factors in all species.

Investigate feasibility of captive propagation as a means of recovery in the Gila chub, phantom shiner, and other appropriate species.

Investigate feasibility of transplants as a means of recovery in the Sierra Blanca-Sacramento Mountains subspecies of the least chipmunk, Tularosa black-tailed prairie dog, Arizona montane vole, meadow jumping mouse, pine marten, white-tailed ptarmigan, sharp-tailed grouse, sage grouse, Gould's wild turkey, Mexican garter snake, western toad, blue sucker, gray redhorse, Gila chub, Zuni Mountains bluehead sucker, roundtail chub, Mississippi silvery minnow, phantom shiner, New Mexico ramshorn snail, Socorro spring snail, Pecos spring snail, Sangre de Cristo pea-clam, Pope's mussel, and other appropriate species.

Disseminate information as appropriate, including through revisions of the Handbook of Species Endangered in New Mexico.

Species Management

Continue captive propagation as a means of recovery in the desert bighorn sheep.

Continue transplants as a means of recovery in the desert bighorn sheep and white-tailed ptarmigan.

Reduce and ultimately eliminate illegal taking, harassment, and habitat loss/alteration as threats to recovery in all species.

Disseminate management information as appropriate, including through revisions in the Handbook of Species Endangered in New Mexico.

Habitat Management

Implement management to maintain, enhance, or reclaim habitat for all species, including through appropriate cooperative agreements and management plans.

Reduce or eliminate factors that degrade or destroy essential habitat for all species.

Monitor the impacts of various management activities on the habitats of all species and change those that are detrimental.

Identify and protect essential habitat for all species, including through acquisition (purchase, lease, or easement), management, regulations, and other means.

Disseminate management information as appropriate, including through revisions of the Handbook of Species Endangered in New Mexico.

NONGAME

Species Management Objective

To develop and implement management to perpetuate native species as viable and integral parts of the ecosystem and biotic diversity of New Mexico.

Discussion

Hundreds of nongame vertebrates, crustaceans, and mollusks occur in New Mexico that are not specifically addressed in this plan. These species are of ecological, aesthetic, cultural, recreational, economic, and scientific value to New Mexico and its citizens. Nongame species pose numerous challenges in their management, in part because of their great diversity and the lack of knowledge concerning their populations, distribution, habitat requirements, life history, limiting factors, and related information. However, objectives presented in the preceding and following sections are or can be presumed to be beneficial to many of these species. In addition, there are more specific actions that can and should be taken toward perpetuating given nongame species and thus in maintaining the biological diversity in New Mexico.

Research

Identify the species that occur in New Mexico and document, analyze, and disseminate information on their populations, distribution, life history, and limiting factors.

Develop appropriate management to perpetuate native nongame species in New Mexico.

Species Management

Implement management as necessary to conserve given nongame species as members of their ecosystems.

Habitat Management

Partition resources on public lands in such a way as to assure that adequate levels are available to maintain viable populations of all nongame species.

Implement management to perpetuate nongame species, including through the use of the following guidelines:

a. Maintenance or development of diverse natural plant communities to provide suitable habitat for all species.

b. Development or enhancement of water availability where this resource is a limiting factor.

c. Implementation of measures to protect nongame habitats from man-associated disruptions, including off-road vehicle use, mining, wood harvest, road and other construction, development, water projects, grazing, and recreation.

APPENDIX

LAWS AND MEMORANDUM OF UNDERSTANDING

The major state and federal laws and cooperative memorandum of understanding which relate to the management, protection, and conservation of the New Mexico wildlife resources are included in the following list.

Master Memorandum of Understanding Between BLM and Game and Fish Department July 1985

Provides the vehicle for coordination and cooperation between U. S. Department of Interior, Bureau of Land Management and New Mexico State Game and Fish Department.

Federal Aid in Sport Fish Restoration Programs

Considers the restoration, conservation, management, and enhancement of sport fish, and the provision for public use and benefits from these resources.

Anadromous Fish Conservation Program

Considers the improvement of stocks and habitats of anadromous fish species and those species of the Great Lakes and Lake Champlain that ascend streams to spawn.

Endangered Species Conservation Program

Considers the conservation of endangered or threatened species of animals and plants to bring such species to the point at which the measures provided by the Act are no longer necessary.

Fish and Wildlife Conservation (Nongame) Program

Considers the development of conservation plans for nongame or for all fish and wildlife, including the gathering and assembling of data required for the development of the plan, the implementation of nongame actions identified in the approved plan, and the accomplishment of approved nongame actions in lieu of an approved conservation plan.

Federal Land Policy and Management Act of 1976

Identifies fish and wildlife development and utilization as a major use of the public lands; directs that the public lands be managed to provide food and habitat for fish and wildlife; authorizes the use of Range Betterment Funds

for the protection, maintenance, rehabilitation, improvement, and management of rangelands, and provides for the preparation and maintenance of an inventory of public land resources on a continuing basis.

Migratory Bird Conservation Act of 1929

As amended, and treaties pertaining thereto, provide for habitat protection and enhancement of protected migratory birds.

Endangered Species Act (ESA) of 1973

As amended, directs Federal agencies to ensure that their actions do not jeopardize threatened and endangered (T/E) species and to help bring about their recovery.

Sikes Act of 1974

As amended, provides for the conservation, restoration, and management of species and their habitats in cooperation with State wildlife agencies.

Taylor Grazing Act of 1934

As amended, provides for wildlife management on public lands.

Public Rangelands Improvement Act (PRIA) of 1978

Directs that the condition of the public rangelands be improved to make them as productive as feasible for wildlife habitat and other rangeland values.

Executive Order 11988, Floodplain Management (May 24, 1977)

Provides for the restoration and preservation of national and beneficial floodplain values on the public lands.

Executive Order 11990, Protection of Wetlands (May 25, 1977)

Directs that wetland and riparian habitats on the public lands be identified, protected, enhanced, and managed.

The Surface Mining Control and Reclamation Act of 1977

Provides that lands may be declared unsuitable for surface coal mining where significant adverse impacts could result to certain wildlife species.

Multiple-Use Sustained Yield Act of 1960 (June 12, 1960)

States as policy that the National Forests are to be managed for the multiple uses of all renewable resources on a sustained basis including wildlife resources. This is to be done without impairing the productivity of the land

and not necessarily with the combination of uses that give the highest dollar return or unit output.

Fish and Wildlife Conservation (September 15, 1960)

Established the authority for Comprehensive Planning and State cooperation. Established the basis for the Sikes Act and this document. Provided for public land management stamps and use of the funds collected.

Federal Water Project Recreation Act (July 9, 1965)

Provides as policy, that all water projects will give full consideration to fish and wildlife enhancement.

National Environmental Policy Act (NEPA) (January 1, 1970)

Provides for the processes to be used in order to assure productive and enjoyable harmony between man and his environment and that the consequences of all activities are considered fully prior to implementing any project.

Forest and Rangelands Renewable Resources Planning Act of 1974 (RPA) (August 17, 1974)

Provides for the consistently wise use of all our natural resources based on long-range plans with limits on timber sales and better values for non-commodity resources (wildlife included). Provides for increased public involvement in all planning activities.

National Forest Management Act of 1976 (October 22, 1976)

As an amendment to RPA, this act mandated the writing and subsequent following of the National Forests' Land Management Plans and included many special provisions for wildlife and fisheries management.

Executive Order 11987, May 24, 1977, Exotic Organisms

Calling for the restriction on public lands of the release, or capture for release of any species to be introduced into non-native ecosystems either inside or outside of the United States.

U. S. Mining Laws (Public Domain Lands) (May 10, 1872)

Provides for the withdrawal of certain lands from entry to remove locatable minerals for some wildlife purposes. Withdraws all wildlife refuges from mineral entry.

Organic Administration Act (June 4, 1897)

Provides for the establishment of National Forests and provides for certain uses of the land, water, and resources and access to these.

Twenty-Five Percent Fund (May 23, 1908)

Assigns Forest Service officers to aid in the enforcement of all laws for the protection of game and fish.

Knutson-Vandenberg Act (June 9, 1930) -As Amended

Authorizes expenditure of certain receipts from the sale of wood products for wildlife habitat management.

Fish and Wildlife Coordination Act (March 10, 1934)

Provides for coordination with all outside groups and agencies for species and habitat development, protection, rearing and stocking of species controlling losses to diseases, and providing public shooting and fishing areas. Also provides for land acquisition to compensate for losses due to water developments.

Sustained Yield Forest Management (March 29, 1924)

Established the sustained yield units with one of their primary purpose being for "the protection of wildlife".

Granger-Thye Act (April 24, 1950)

Provides for deposits and collections of funds that may be expended for vegetative improvements and animal damage control activities.

Watershed Protection and Flood Prevention Act (August 4, 1954)

Provides for the cooperative conservation and development of wildlife resources with local groups and agencies when watershed improvement work is being done, including surveys and other investigations, paid for by appropriated funds to the Department of the Interior.

STATUTORY AUTHORITY

HISTORICAL REVIEW

The wildlife of New Mexico first received legal recognition in 1867, when the Territorial Legislature passed a predatory bounty law. This law (Chapter 763 of the 1897 Compilation) provided for payment of a fifty-cent bounty on coyotes, $1.00 for bobcat, and $5.00 for bear, panther, and mountain lion. There were changes in rates and methods of raising the bounty money in the 1891, 1899, 1901, 1903, 1905, and 1909 legislative sessions.

In 1895 the first New Mexico game laws were enacted. Chapter 25 of the 1895 laws provided for a three-month season on deer, elk, and antelope. A season was also set for quail and wild turkey. The act provided penalties of $25 to $50 fines or ten- to thirty-day jail sentences for violations of its provisions. Protection of wildlife was expanded in Chapter 32 of the 1897 law to include mountain sheep, mountain goat, beaver, grouse, prairie chicken, pheasant, and partridge. This act also provided for a trout season, with size limits, and for a bass season. Chapter 25 of the 1901 laws for the first time prohibited the killing of song and insectivorous birds. Chapter 48 of the 1903 laws established the position and authority of the territorial game and fish warden.

Chapter 83 of the 1909 statutes served as the basic game law until 1931 when the Game Commission was given full regulatory powers to manage the game animals and game fish of New Mexico. A hunting license system was established to provide revenue, and the Game Protection Fund was created. Ducks, curlew, plover and snipe were recognized as game birds to be protected. The act also provided for the collection of civil damages for the illegal taking of game. The 1913 Legislature, the first convened under statehood, made few changes in the 1909 code. It did, however, create the Department of Game and Fish. Chapter 133 of the 1919 session laws added blue grouse and sage hen to the protected list of game.

The 1921 Legislature established a State Game Commission of three members to serve six-year terms. Chapter 35 of the 1921 laws states: "It is the purpose of this bill to provide an adequate and flexible system for the protection of game and fish of New Mexico and for their use and development for public recreation and food supply." Another section says: "The State Game Commission is hereby authorized and directed to make such rules and regulations and establish such service as they may deem necessary to carry out all of the provisions and purposes of this Act...."

Chapter 117 of the 1931 session laws repealed 44 sections of the existing law and gave the Commission authority to replace them with regulations. The Commission was expressly authorized and empowered to: "(a) Define game birds, game animals and game fish; (b) Establish open and closed seasons for the

killing or taking of all kinds of game animals, game birds and game fish ...; (c) Establish bag limits covering all kinds of game animals, game birds and game fish ...; (d) Authorize or prohibit the killing or taking of any game animals, game birds or game fish ...; (e) Prescribe the manner, methods, and devices which may be used in hunting, taking, or killing of game animals, game birds, or game fish." Clause (a) above was later ruled to be an unlawful delegation of legislative power.

In 1931 the Game Commission, acting under its newly acquired regulatory authority, adopted Regulation No. 38. This basic regulation established legal and illegal methods and manners of taking game and fish.

In 1937, bullfrogs became protected. Through the years, other wildlife species have been protected by their addition to the laws' lists of protected game and furbearers.

PRESENT AUTHORITY

Chapter 17 of New Mexico Statutes Annotated, 1978 Compilation, is the framework of laws from which we derive our present authority. As a declaration of policy, the statutes provides legal protection for the game and fish of New Mexico, for their use and development for public recreation and food supply, and for their protection, regulation, and conservation to the extent needed to provide and maintain an adequate supply of game and fish. These laws empower the established State Game Commission to declare, through regulations and orders, the appropriate closed and open seasons, manner and method of taking, and other actions for the benefit of New Mexico's game, fish and furbearers. The law directs the State Game Commission to employ a department Director, who shall in turn employ conservation officers and other personnel to enforce and administer the laws and regulations relating to game and fish.

Additions and amendments to Chapter 17 have extended the authority and responsibilities of the State Game Commission and department and extended protection to other species. For example, our authority to protect hawks, owls, and vultures was established by law in 1971. Also in that year the Game Department was empowered to enforce the Snowmobile Act. In 1974 the Wildlife Conservation Act gave the department responsibility for identifying, protecting and managing indigenous endangered species.

PRESENT CONSTRAINTS

In summary, the present laws of New Mexico limit the authority and responsibility of the State Game Commission and the Department of Game and Fish to management of only certain wildlife species. These are:

> those named by laws as game mammals, game birds, game fish,
> or nonpredatory furbearing animals;

miscellaneous other species and groups specifically protected by law (bullfrog, horned toad, songbirds and insectivorous birds, hawks, owls and vultures);
species, whether game or nongame, named on the State Game Commission's list of endangered species.

It is obvious that the Commission and the department lack the authority to protect and manage an important portion of the wildlife ecosystem. That lack is significant, not only for the protection, conservation and management of those unprotected species, but also for the benefit of already protected wildlife, whose welfare is often affected by the presence or absence of the currently unprotected species. We cannot hope to manage full ecosystem, for the benefit of wildlife and man, until we have authority to manage all components of the ecosystem.

The Wildlife Conservation Act of 1974 had originally been drafted as a bill to extend our authority and responsibility to all wildlife of the state, but the extension of authority and responsibility was legislatively limited to endangered species. In 1977, the department supported a new Wildlife Conservation Act that would have broadened our authority to include any wild nondomestic vertebrate not classified by law as a game mammal, game bird, game fish or nonpredator furbearing animal. This bill did not pass.

The department will continue to support legislation that would give it the broadened authority necessary to follow an ecosystem approach in the conservation and management of New Mexico's wildlife. Only thus can it fulfill totally its principal obligations to the state's wildlife resources and the citizens of New Mexico.

FISCAL AUTHORITY

At present (1986), the programs of the Department of Game and Fish are financed by the following sources, which contribute the indicated percentages of the department's total revenue:

68% Sale of hunting and fishing licenses and special permits.

28% Federal grant-in-aid programs, of which:
  63% Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act).
  34% Federal Aid in Fish Restoration Act (Dingell-Johnson, Wallop-Breaux).
  2% Bureau of Reclamation Funds (Brantley Project).
  1% Commercial Fisheries Recreation and Development Act.

1% State General Fund (authorized by New Mexico Wildlife Conservation Act of 1974; for conduct of work for endangered species).

3% Miscellaneous sources such as sale of department publications confiscated game, timber and excess property, rents for use of department property and interest earned on investments.

FEDERAL GRANT-IN-AID PROGRAMS

Pittman-Robertson Act

The Pittman-Robertson Act of 1938 provides for an 11 percent federal excise tax on sporting arms and ammunition, 10 percent tax on pistols and revolvers and 11 percent tax on archery equipment. The funds collected are apportioned to the states on the basis of the number of hunting licenses sold and land area in each state. Fifty percent of all tax money collected from pistols, revolvers and archery equipment must be expended on hunter safety training programs. The remaining funds are used for approved wildlife restoration programs for which federal funds may be used for no more than 75 percent of the cost. Approvable projects include:

Coordination - selecting, planning, directing and supervising the states' federal aid programs; maintaining the required records; correlating the federally financed activities with other state operations.

Technical Guidance - providing assistance to governmental and individual land-managers in habitat manipulation projects to protect, improve or create habitat conditions favorable for wildlife and to manage wildlife habitat for increased populations and utilization by the public.

Land Acquisition - acquiring land, water or other real property in order to contribute to the restoration or management of wildlife and to the public use of these resources.

Development - creating, improving or perpetuating habitat conditions favorable for wildlife through such activities as construction of dams, waterings, fences and roads, transplanting wildlife, range seeding and tree planting. Hunter Training - teaching safety practices in firearms-handling and hunting (course material may also include principles of wildlife management, first aid, water safety, hunting responsibility and ethics, wildlife identification and other related topics).

Research and Surveys - obtaining, storing and analyzing data on wildlife habitats and effects of consumption, nonconsumption and competitive uses in order to manage wildlife and their habitats to the benefit of both wildlife and people.

Planning - developing a long-range comprehensive wildlife plan which will authorize a state to obtain federal aid funds under the plan rather than under individual projects.

Dingell-Johnson Act

Similar to the Pittman-Robertson Act, the Dingell-Johnson Act of 1951 provides for a 10 percent federal excise tax on fishing rods, creels, reels, and artificial lures, baits and flies. The funds are allocated to the states for fish restoration programs under procedures similar to those for Pittman-Robertson funds and for the same activities except hunter training. On October 1, 1985, the Wallop-Breaux Amendment took effect which increased Dingell-Johnson funds available to the states excise taxes were expanded to include, tackle boxes, trolling motors, flasher type fish finders, import duties on yachts/pleasure craft and imported fishing equipment, revenues accrued from marine fuel tax above $46 million and taxes collected from certain importers not paying full amount at port of entry. Provisions and stipulations included in the Wallop-Breaux Amendment are a mandatory 10 percent of apportionment allotted to each state must be spent on boating access, for coastal states a mandatory 10 percent must be spent on saltwater fishes, and up to 10 percent of apportionment may be used for aquatic education programs.

Commercial Fisheries Recreation and Development Act

The program pays 50 to 100 percent of the costs of research for and development of commercial fisheries. In New Mexico, grants have been made for investigating use of vertical raceways to improve fish production, analyzing harvest rates in order to improve regulations, identify outlets for harvested commercial fishes and management harvest of nongame fishes.

Endangered Species Act of 1973

This act provides for grants to states that enter into federal-state cooperative agreements for the conservation of endangered species. Since 1983, the department has used Share with Wildlife Funds (money donated by individuals for use on species where funds are unavailable or funds are insufficient to establish programs), in conjunction with Endangered Species funds to develop programs in this area.

Bureau of Reclamation Funds (Brantley Project)

An annual apportionment of $100,000 per year was granted to the department from the Bureau of Reclamation for maintenance and operation of the William S. Huey Farm.

Financial Responsibilities

The New Mexico Department of Game and Fish generates its own revenue from the sale of hunting and fishing licenses and federal excise tax paid on purchases of various hunting and fishing equipment. If we are to continue to respond successfully to the demands, other user-based sources of funding must be identified to supplement the hunter and angler contributions.

One possibility for more adequate and more broadly based funding is a legislative apportionment from the State General Fund. Consideration for apportions from the State General Fund should only be allowed if the department's revenues are kept under the control of the department and used solely for fish and wildlife programs. A state is ineligible to receive federal funds from the Pittman-Robertson or the Dingell-Johnson funds if its laws do not ensure that its revenue from sales of hunting and fishing licenses is used solely for operating the Department of Game and Fish.

In addition, some interested persons fear that department dependent upon state general funds might become subject to political pressures. Other funding possibilities, such as ear-marking a percentage of tax on certain commodities or services, that would subsidize the income of the department. The Department of Game and Fish fully recognizes its obligation to manage and protect all fish and wildlife -- game and nongame -- for nonconsumptive as well as consumptive uses of the wildlife resource, therefore, consideration in developing other sources of funding should include the nonconsumptive users participation in helping defray the costs of managing the wildlife's resources.

NEW MEXICO DEPARTMENT OF GAME AND FISH
PHILOSOPHICAL BASIS OF WILDLIFE MANAGEMENT

BASIC RESPONSIBILITIES AND PRIORITIES

The principal obligation of the New Mexico Department of Game and Fish is to hold all the state's wildlife resources and their habitats in trust for the enjoyment, appreciation, economic benefit and scientific instruction of present and future generations of New Mexicans. We view ourselves as temporary custodians of the wildlife resource and recognize that we cannot dictate to future custodians their responsibilities. It is our obligation, however, to strive to ensure that the next generation is handed the wildlife resources and their habitats intact and in a viable condition. This obligation sets for us the following general priorities of responsibility.

1. Our first responsibility is to the wildlife resources and their habitats. As custodians meeting an obligation to future generations, we must strive to develop and apply the knowledge necessary to assure the viability of all wildlife species in New Mexico. Our conception of a viable wildlife population is one that lives in a free-ranging and self-supporting state within its habitat.

2. Our second responsibility is to the present generation of New Mexicans. We are custodians of the wildlife resources and their habitats, but we are also conservationists and as such concur with the concept of "wise use" of the resources. We will encourage, manage for and support the present generation's enjoyment, appreciation and economic, scientific and recreational use of our wildlife resources and their habitats, but only in ways and places and at times and levels commensurate with our custodial responsibility.

MANAGEMENT

The above statements evince our acceptance of the responsibility of management. In its broadest terms, wildlife management is human effort to manipulate scientifically the natural resources of soil, water, plants and animals (including man) for the purpose of producing desired numbers and kinds of animals for the overall best interests of wildlife and man, whether these interests be esthetic, economic, recreational, educational or survival. A management decision may be either one to take an action or one to take no action, but in either case it is a conscious decision. In such management, our commitment to the following basic concepts will further determine our priorities.

Ecosystem Approach

The department recognizes that wildlife populations and their habitats do not exist in vacuum, but comprise a portion of a complex and dynamic network of relationships collectively termed an ecosystem. Alterations in any component of the ecosystem inevitably create ripples of impact as other components respond and adjust to the altered situation. The department will, therefore, examine, to the extent of available knowledge, the ecological ramifications of any proposed management before it turns that proposal into action.

Few, if any, ecosystems in New Mexico are now in pristine condition; most or all have been affected, to a greater or lesser extent, by the activities of man. Some of the state's ecosystems are more nearly in natural, pristine conditions than others in New Mexico, and conservation of these ecosystems demands a priority consideration in the department's management programs. High priority must also be given to restoration of destroyed or altered ecosystems that are vital to the survival of an endangered species. When endangered species are not a factor, restoration of destroyed or greatly altered ecosystems is still desirable, but should not be recommended if accomplishment of the restoration would so adversely affect existing human use of the habitat as to produce major loss of public support for wildlife restoration.

Diversity

Because of the intricate relationships between components of an ecosystem, removal of some components reduces the overall natural diversity and thereby threatens the stability of the ecosystem. Likewise, existence of many subspecies or races within a species helps assure the continuing survival of that species. Actions creating monocultures are tantamount to putting all the eggs in one basket. Management of an ecosystem to maintain or recreate diversity fosters the stability of the ecosystem and of its component species. It also produces maximum variety of human experience with wildlife, an objective consonant with the department's principal obligation.

Equal Consideration for Each Species

Our obligation to hold all wildlife resources in trust and our commitment to an ecosystem approach demand that we manage whole ecosystems, not just the species most favored by man. We must accord equal consideration to each species within an ecosystem in our efforts to maintain viable and diverse wildlife populations.

Our Option to Manipulate

When we have assured viability of each species to the best of our ability, we have the option to manipulate species' populations. We would so act in order to conserve ecosystems and to meet the ecological necessities of a particular species, as well as to meet our responsibilities toward public demands on wildlife resources and wildlife habitats.

Multiple Use of Habitats

The department's obligation toward all the state's wildlife resource and its dual responsibility to wildlife and people dictate a commitment to multiple use of wildlife habitat, by various species of wildlife and by both wildlife and humans, whenever such use does not threaten the viability of any wildlife population. In putting this into practice, however, the department recognizes that any particular ecosystem is more suited to certain species and uses than to others and should be managed accordingly. Also, we admit we must still learn a good deal more about how much in what ways a particular ecosystem can be used by wildlife and man and still remain viable and productive.

WILDLIFE RESOURCES: OUR RESPONSIBILITIES AND PRIORITIES

Wildlife species differ in their ecological requirements, as well as in their productivity, longevity, mobility and other biological characteristics. The viability of one species may therefore be threatened by our efforts to promote the viability of another species; the same may occur due to natural causes beyond the department's control. Although we are committed to according all species equal consideration in our management efforts, provided the viability of each species remains unthreatened, these potential conflicts between the interests of species require that we establish the following priorities.

INDIGENOUS AND NONINDIGENOUS WILDLIFE SPECIES

We use "wildlife" to include those species of fauna that are not human, that are not domesticated, and that are not formerly domesticated but now feral. Two broad categories of wildlife occur in New Mexico: the indigenous (or native) species and the nonindigenous (or exotic) species.

"Indigenous" species are, for planning purposes, those that were present in what would become New Mexico at the time the Spanish explorers first arrived in this area (the late 1500's), or those that have subsequently spread to the area without direct human intervention. For purposes of this Plan, "nonindigenous" species are those whose occurrence in New Mexico has come subsequent to the late 1500's, when the Spanish explorers first arrived here, and as a result of direct intervention by man.

Subsequent to the arrival of the Spanish explorers, some indigenous species have been extirpated from New Mexico. Because man's actions were generally the major causes of these extirpations, responsibilities concerning these species are more appropriately discussed below, in the section headed "People."

Some introductions of nonindigenous species have seemingly not threatened the viability of indigenous species, because these introductions were made into altered habitats thought to be unsuitable for indigenous species. Men's deliberate introductions of nonindigenous species have at times provided greater opportunities for outdoor recreation.

Effects of introductions of nonindigenous species on viability of indigenous species must today be assessed in terms of the stresses placed on wildlife by continuing declines in available wildlife habitat and increases in other human-caused pressures to which wildlife is subject. At the same time, we recognize that some past introductions of nonindigenous species resulted in continuing benefits to man and in such well-established populations of these species in altered habitats that there is no practical approach to or benefit from attempts to return that ecosystem to its pristine state.

The statement of the department's general priorities indicates the following priorities of responsibility in resolving conflicts of interest between indigenous and nonindigenous species:

1. The department's first responsibility is to maintain or promote viable populations of indigenous wildlife species and their habitats.

2. The department's second responsibility is to maintain viable populations and the adopted habitats of those nonindigenous species desired by the public so long as the presence of the nonindigenous species does not threaten the viability of indigenous species.

PREDATOR AND PREY WILDLIFE SPECIES

Predator and prey species evolved together. Our primary obligation to ensure the viability of all New Mexico's wildlife resources constraints us from advocating eradication of any predator. In addition, elimination of predators is contrary to our ecosystem approach and to the concepts of diversity and equal consideration for all wildlife species.

Our statement of general priorities of responsibility dictates the following priorities of responsibility in resolving conflicts of interests between predator and prey species"

1. Our first responsibility is to maintain viable populations of all species, whether predator or prey. We may at times require a reduction in the numbers of a specific predator species when its populations threaten the viability of a prey species, but we may not eliminate the predator species. Likewise, when a particular predator species is threatened with extinction because of lack of suitable wildlife prey, our responsibility would require that we attempt to increase availability of suitable wildlife prey through such measures as habitat management favorable to the prey species or manipulation of competing uses of the prey species.

2. Our second responsibility is to manipulate the size of predator populations, provided their viability is assured, to accommodate legitimate human demands for the control or use of the predator species.

This section speaks only to conflicting interests between predator and prey wildlife species. Conflicts between the interests of predators and human

property and safety will be addressed below in the section headed "Control of Predators, Nuisance Animals and Disease Vectors."

GAME AND NONGAME WILDLIFE SPECIES

As this plan is written in 1987, the New Mexico Department of Game and Fish lacks legislative authority to manage most nongame species. It is probable that authority to manage all wildlife, game and nongame alike, will eventually be extended to the department. With or without such authority, however, the department recognizes that its management of game species has both direct and indirect effects on ecosystems of which nongame species are components. In resolution of conflicting interests of game and nongame species, the following priorities of responsibility are dictated by the statements of the department's general priorities of responsibility and of its principal obligation:

1. The department's first responsibility is to maintain viable populations of all species, whether game or nongame. This requires that we examine, to the extent of available knowledge, the possible effects of any proposed game management on nongame species before acting on the proposal. It also requires that we alter the proposal if our examination indicates that the proposed management will threaten the viability of any nongame species.

2. Our second responsibility is to manage game and nongame wildlife, within our statutory authority, so as to accommodate human demands for use and enjoyment of both types as a wildlife resource, provided their viability is assured. Additional discussion of the management of game versus nongame species appears in the section on consumptive, nonconsumptive, and competitive uses.

NATURAL AND ARTIFICIAL WILDLIFE POPULATIONS

The conception of a viable population of a wildlife species as one that lives in a free-ranging and self-supporting state within its habitat sets further restrictions and priorities for the department. In its wildlife restoration and research, the department must give priority to those techniques that do not tame, domesticate, or hold wildlife captive, except when the viability of a species is threatened or when such techniques are necessary to wildlife restoration or in research for the ultimate enhancement of wild populations.

PEOPLE: OUR RESPONSIBILITIES AND PRIORITIES

Climatic and geologic changes and competition between species were the primary agents in molding the evolution of the world's fauna and flora. Now, however, competition with one species, man, is more likely to determine the future of most species than is any other factor. If we are to fulfill our principal obligation to New Mexico's wildlife resources, we must accept certain responsibilities and set certain priorities in our decisions and actions in dealing with the many interactions between wildlife and man and in resolving

conflicts between the interests of wildlife and man. These priorities of responsibility must be consonant with the general priorities of responsibility already established; that is, the department must give its highest priority to meeting wildlife needs whenever viability of a wildlife population is involved.

CONTROL OF PREDATORS, NUISANCE ANIMALS AND DISEASE VECTORS

Under specific circumstances, the activities of wildlife may directly threaten human safety, may endanger the health of humans or domestic animals through transmission of disease, or may have critical, adverse effects on the economic welfare of individual persons or communities through depredations on livestock or damage to crops and property. In such cases, the department will remove, as humanely and efficiently as possible, the offending individual animals of those wildlife species for which it has statutory jurisdiction and responsibility, provided such action does not threaten the viability of the particular species involved.

When economically and biologically feasible, preference is given to those techniques for control of predation, disease and nuisances that do not kill wildlife. Concern for the viability of all wildlife species and for the welfare of the ecosystem obligates us to approve the use of only the most environmentally acceptable means of wildlife control by any agency or individual.

CONSUMPTIVE, NONCONSUMPTIVE AND COMPETITIVE USES OF WILDLIFE, PHYSICAL RESOURCES, AND HABITATS

Human demands on wildlife resources and their habitats can be classified as: (1) Consumptive, e.g., hunting and fishing; (2) Nonconsumptive, e.g., nature photography, backpacking; (3) Competitive, e.g., grazing, timbering, mining, urban sprawl. (Certain ambiguities in these classifications will be mentioned below). The department's custodial responsibilities obligate it to consider consumptive and nonconsumptive use equally and to oppose competitive use that is unacceptably detrimental to wildlife habitat. In its management decisions, the department will, to the best of its knowledge, weigh the impacts on wildlife and their habitats of consumptive, nonconsumptive and necessary competitive demands on a statewide basis to assure that the various uses are integrated to the fullest possible extent in accordance with sound wildlife management principles.

At present, the bulk of the department's statutory responsibilities and management direction are concerned with providing and enhancing consumptive uses of game species. This emphasis is historically understandable and has been appropriate because consumptive use of game species has a greater impact on wildlife than does nonconsumptive use. Management for consumptive use also benefits nonconsumptive users, both for game species and, to varying degrees, nongame species. As nonconsumptive uses increase, their impact on game and nongame wildlife will also increase, and it will be appropriate to augment and broaden our management for greater consideration of nonconsumptive use.

CONSUMPTIVE USES OF WILDLIFE

1. Hunting, Fishing and Trapping

The department recognizes hunting, fishing and trapping as legitimate consumptive uses of those wildlife species the numbers and population dynamics of which are such that they can sustain managed harvests. Hunting, fishing and trapping are recreations traditionally enjoyed by man. They provide funds for research, management and conservation that benefit both game and nongame wildlife species. They provide food and other products to humans. They provide benefits to New Mexico's economy through related expenditures by hunters, fishermen and trappers. The department's general priorities dictate that it set the following priorities of responsibility in its management of hunting, fishing and trapping:

(1) Allow hunting, fishing and trapping only when these activities do not threaten the viability of the hunted, fished or trapped species.

(2) Strive to meet the public's demand for hunting, fishing and trapping, within the constraints of the department's obligation toward all the state's wildlife resources and their habitats.

2. Illegal Take

Illegal take is a consumptive use of wildlife resources. It, however, removes wildlife in which management funds have often been invested, while at the same time it provides no funds for further management, research and conservation benefiting the species removed. The effects of the illegal take on the species' viability are unmanaged. Illegally taken animals are no longer available to the license-buying hunter or fisherman nor to the person who wishes to see or photograph wildlife. Under its principal obligation as custodian of wildlife resources and its dual responsibilities to wildlife and to humans, the department must, through law enforcement and public education, strive to eliminate illegal removal of wildlife.

3. Collecting for Scientific, Zoological and Educational Purposes

These activities represent a human and usually consumptive demand on the wildlife resources. So long as the exercise of these activities does not threaten the viability of any wildlife population, the department has a responsibility to permit such activities to the extent that they are within the department's authority to control and are justifiable as contributing to human knowledge, awareness and appreciation of wildlife and its needs. At the same time, the department has a responsibility to minimize the impact of these activities on the wildlife resources by permitting only that level of collecting activity necessary to meet the approved scientific, zoological or educational purpose.

4. Taking for Commercial Purposes

In many cases, commercial use is legal of products derived by licensed hunting, fishing or trapping that is open to all. Sale of the trapper's take is an example. Such commercial benefits are available to all people as a result of the department's managing the state's wildlife and holding it in trust for all people. Any proposal to license the taking of wildlife for the financial benefit of a limited number of individuals must be carefully considered.

The department does recognize that certain controlled commercial uses may be warranted when they benefit both wildlife and people. An example is the licensing of commercial use of certain fish from selected waters. The fish taken are primarily nonindigenous rough fish, the removal of which benefits other fish populations, including indigenous nongame and game fish. The commercial fishing also provides protein for humans and economic benefits for both the individual licensee and the communities involved in the businesses. Other examples are park and lake licenses to permit commercial use of game ungulates on large private holding or game fish within private waters. These licenses require prevention of passage of game ungulates or fish from or into the licensed area and prohibit reduction of the amount of game present below the amount of the public's game present when the area was licensed. Wildlife generally benefits when availability of commercial licensing persuades the landowner to retain the area as wildlife habitat rather than convert it to other uses for profit.

5. Collecting of Live Animals for Recreational Purposes

For several reasons, the department does not in general favor the captive-holding of live wildlife for recreational purposes. This attitude prevails despite the argument that the department could allow a limited "harvest" of live animals of species with highly viable populations in order to satisfy the public's demand for use and enjoyment of captive wildlife. Any such "harvest" and use would have to be done under strictly controlled permit system, and the department's funding and manpower are inadequate to manage a permit system of such size and complexity without significantly detracting from accomplishment of the department's primary obligations toward free-ranging wildlife. Such a permit system would, for example, have to: (1) control the kinds and numbers of animals taken; (2) control the continuing care and disposition of the captive animals; and (3) ensure against escapes or unauthorized releases in order to prevent introduction of animals into areas of differing genetic makeup or into areas where the introduced animal might affect existing wildlife through competition or predation.

With respect to those species for which the department has authority, only certain raptors may now be taken from the wild for captive-holding by individuals for recreational use. There are provisions for holding other species, but none of these may be taken from the wild for recreational use. In addition, there are other permits for taking and holding for propagation,

but these permits must be for justifiable scientific or zoological purposes, rather than for recreational purposes.

Under its first responsibility to wildlife, the department must continue to control captive-holding of wildlife to protect free-ranging wildlife. With this precaution, however, it should continue to provide the present level of opportunity for recreational use of captive wildlife, until such time as changes in public demand or other factors indicate the necessity of reexamining the department's policies and practices in this area in the light of its principal obligation and, if necessary, its capabilities.

Nonconsumptive Uses of Wildlife Resources and Their Habitats

Nonconsumptive uses would include such activities as viewing and photographing wildlife and natural areas, backpacking and the like. So long as these activities pose no threat to the viability of a wildlife population, the department will allow and encourage these activities, not only because of its responsibility toward human use of the wildlife resources and their habitats, but also because of the value of these activities in increasing awareness and appreciation of wildlife and natural areas.

Most so-called nonconsumptive uses are actually, to a greater or lesser extent, uses that "consume" some portion of wildlife habitat and some portion of the energy that wild animals might otherwise be free to apply to their survival. Increasing numbers of backpackers and other recreationists frequent the wild places of New Mexico, often camping in the very areas needed or favored by wildlife for feeding and watering. Even if wildlife is not deliberately harassed, the frequent disturbance, particularly when young are being produced and raised, may materially affect the welfare of individual animals and of wildlife populations. Destruction of vegetation that provides food and cover is also of importance. Increasing recreational demands also foster construction of more trails and access roads, and this is turn destroys vegetation and increases the ease and incidence of disturbance. Litter, although not esthetically offensive to animals as it is to some humans, can prove harmful to wildlife in some cases.

The primary responsibility of the Department of Game and Fish to wildlife dictates that it monitor effects of nonconsumptive uses on the wildlife resources and their habitats. When these effects are adverse, the department must seek to alter or limit such use, to the extent of our legal or persuasive authority, in order to mitigate such adverse effects. The department also has a responsibility to make the public aware of the effects of some nonconsumptive uses on the wildlife resources and their habitats and to attempt to influence public opinion in favor of protection of wildlife and natural areas against such impacts.

When nonconsumptive uses do not adversely affect wildlife, the department should enhance the activity's value, to both the user and wildlife, through education to increase the user's awareness and appreciation of the wildlife encountered and of the area's characteristics as wildlife habitat.

Competitive Uses

Competitive uses are those that affect the welfare of wildlife because they alter or destroy wildlife habitat, even though the users may have no conscious intent to preempt wildlife habitat per se. Competitive uses include such activities as grazing, timbering, mining, water manipulation, and the spread of farmlands and of urban areas.

The department's general priorities dictate that its first responsibility is to oppose and seek to mitigate the effects of all such uses whenever they threaten the viability of a wildlife population, and to encourage such uses if they are known to benefit wildlife populations.

The department's second responsibility is to attempt to accommodate inclusion of such competitive uses within wildlife habitat whenever they are in the public interest, will not threaten the viability of a wildlife population, and are in accordance with the uses to which a particular ecosystem may be most suited. We must try to incorporate human needs within existing ecosystems in a manner consonant with preserving biological and genetic diversity. At present, however, we do not know in most cases how many wild animals and how much natural habitat we can safely displace without significantly altering wild ecosystems. Because in most cases the department lacks control over land use and is without legal recourse, it usually cannot act directly on these problems. It must, however, monitor the effects of these developments, suggest alternative approaches to mitigate negative impacts, and voice its opposition to proposals destructive of wildlife or wildlife habitat.

The department recognizes that wildlife habitat will be used to satisfy man's needs and interests whenever a significant number of people demand satisfaction of those needs or indulgence of those interests. This applies equally to the competitive, nonconsumptive and consumptive uses. When human needs conflict with wildlife needs, the department's responsibility is to make people aware of wildlife needs and of the possibilities for alternative actions and to strive to develop human interest in wildlife for both its own sake and its benefits to man. Such development of interest goes beyond information and education and includes such steps as finding ways to induce landowners who control wildlife habitat to maintain acreage for wildlife rather than convert it to agricultural or other purposes. It also includes efforts to have wildlife use of lands and water more fully recognized as beneficial use of those resources and efforts to promote livestock grazing practices that reserve adequate forage for wildlife.

RESTORATION OF EXTIRPATED SPECIES

Past conflicts between the interests of wildlife and man were often the cause of extirpations of indigenous wildlife species from New Mexico subsequent to the arrival of the Spanish explorers. Overutilization by man accounted for some extirpations. Natural causes, such as extended droughts, may have caused other extirpations, but these are less frequently the case, and less well documented.

As custodians of New Mexico's wildlife for future generations, the department has a responsibility to assess the feasibility of restoring extirpated species when appropriate stocks of such species are available elsewhere. Such assessment, however, must consider the factors that might defeat a restoration effort. Is the present ecosystem too greatly altered? Are the original causes of extirpation still present? Is the available stock similar enough to the extirpated populations? Is the public in favor of, or opposed to, or disinterested in the proposed restoration?

If a suitable ecosystem and suitable stock still exist, and if the original causes of the extirpation are now absent, weakened or controllable, then the department has a responsibility to consider restoration of the particular extirpated species. Before attempting restoration, however, the department must first assess the restoration's probable and possible effects on other components of the ecosystem. Restoration would not be attempted if the restoration would further threaten a species that is endangered throughout its entire range and for which the New Mexico habitat is critical to its survival.

These same responsibilities and procedures should also apply to the restoration of indigenous species that may survive in one or more areas of New Mexico, but that have been extirpated from other areas of the state where they once occurred.

HUMAN ATTITUDES TOWARD WILDLIFE

Human attitudes toward wildlife will become increasingly important to the future of wildlife as growth of human populations and technology increase pressures on wildlife and its habitat. We must, of course, inform and educate people about their opportunities to enjoy and use wildlife and about the ways in which mankind benefits from the existence of wildlife and natural areas. This effort, however, should be so structured as to influence and educate the public so that wildlife problems are adequately understood. If we are to be effective in this, we must take certain steps. We must inform ourselves about existing attitudes among various segments of the public and among ourselves, the "wildlife workers." We must then examine and understand these attitudes, their roots, their amenability to change, their actual and potential effects on the welfare of wildlife.

Our efforts to inform and educate the public should also foster a sense of individual, personal responsibility toward the interwoven future of wildlife and man. That is no easy task, but it is essential to the success of any conservation endeavor.

We are speaking, of course, of ethics, a subject perhaps not expected in a wildlife management plan. Our Plan sets goals to be reached and guideposts by which we can measure our progress. Our commitment, however, cannot end with 1995. Fulfilling the department's principal obligation, as stated in this section on philosophies, requires commitment, and public support of that commitment. The decisions and the efforts that lie ahead quite likely may

become increasingly difficult and will require an ethical approach, not only on the part of the managers of the wildlife resources and their habitats, but also on the part of the public that supports the management agencies.

11/89 R 31
ONS
R'S CARD
game mgmt.
d life
OFFICE
DATE RETURNED
6-23
ager A2040
6/25/90
8/24
A7-020
9/24/90
(Continued on reverse)

BLM LIBRARY
SC-324A, BLDG. 50
DENVER FEDERAL CENTER
P. O. BOX 25047
DENVER, CO 80225-0047

DATE DUE

GAYLORD
PRINTED IN U.S.A.